IN THE COURT OF ARBITRATION FOR SPORT

FLOYD LANDIS	)	
	)	
Appellant,	)	
	)	
V.	)	**CAS 2007/A/1394**
	)	
UNITED STATES ANTI-DOPING AGENCY	)	
	)	
Respondent.	)	
	)	

SUMMARY OF PRIOR TESTIMONY FOR WILHELM SCHÄNZER

Dr. Schänzer is not available to testify during the upcoming hearing. However, USADA designates his prior testimony during the AAA Hearing for purposes of this hearing. A copy of the excerpt of the Hearing Transcript containing the entirety of Dr. Schänzer's testimony is attached.

Dr. Schänzer gave testimony on the following topics, and was subject to cross examination based on his testimony. The summary below is provided for the Panel's convenience.

1. Dr. Schänzer has significant experience with the use of isotope ratio mass spectrometry (IRMS) in the detection of steroids, and the technique is "well developed," "highly reliable," and "a very well-accepted technique." Tr. at 1124:12-1125:10.

2. The laboratory documentation package from LNDD for Appellant's Sample "clearly shows an adverse analytical finding for the misuse of testosterone or kind of other prohormones of testosterone." Tr. at 1127:18-1128:6; 1149:18-1150:3.

3. Dr. Schänzer was satisfied with all the data from the controls, including peak forms, peak shapes, and the internal reference compound. Dr. Schänzer testified that the data indicate to him that "the technique, the instrument, runs in good, excellent condition, very well performance of the instrument, and the data are clearly presented." Tr. at 1128:20-1129:5.

4. The delta values reported for the Internal Standard in LNDD's documentation package were acceptable in Dr. Schänzer's opinion. Tr. at 1130:3-1131:21; 1184:24-1185:8.

5. If the sample had been analyzed at the Cologne laboratory, Dr. Schänzer testified that it would have been declared positive. Tr. at 1133:24-1135:5.

6. Based on a study conducted by Dr. Schänzer, the metabolite 5-alpha is more influenced by administration of testosterone gel than is the metabolite 5-beta. Tr. at 1143:19-1145:14; 1146:14-21.

7. Dr. Schänzer testified that administration of testosterone does not necessarily result in the T/E ratio going above 4:1. Tr. at 1164:4-25; 1165:17-1166:14; 1186:6-1187:23. He further testified that for two individuals in his study the administration of testosterone had no effect at all on the T/E ratio. Tr. at 1165:17-1166:14.

8. Dr. Schänzer testified that the chromatography for the analytes of interest were, from his experience and expertise, "good forms." Tr. at 1174:14-1178:20.

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MR. YOUNG: Are you there, Dr. Schänzer?
MR. LANG: Okay, sir. There you go.
THE WITNESS: Okay.
MR. YOUNG: Dr. Schänzer, can you hear us okay? Hello, Dr. Schänzer?
THE WITNESS: Yes. I can hear you, but very low.
MR. YOUNG: Is this better?
THE WITNESS: A little bit, but not as good.
MR. YOUNG: How about now?
THE WITNESS: A little bit better, but not as clear as I would like to have it.
MR. BRUNET: Hello, Dr. Schänzer, can you hear me?
THE WITNESS: Yes, I can hear you.
MR. BRUNET: This is Patrice Brunet. I'm the chair of the Panel.
THE WITNESS: Yes, I can hear you.
MR. BRUNET: We will proceed now with the swearing-in.

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WHEREUPON,
WILHELM SCHÄNZER, Ph.D.,
the witness herein, having been first duly sworn telephonically to state the whole truth, testified on his oath as follows:

EXAMINATION

BY MR. YOUNG:
Q. I'm switching microphones now, Mr. Schänzer. Can you hear me better?
A. Yes, I can hear you.
Q. All right. This is Richard Young.
A. Yes, Mr. Young.
Q. You're live in a courtroom.
A. Yes.
Q. And the Panel is Mr. Brunet, Mr. Campbell and Mr. McLaren, and then Dr. Botré is here as the Panel's expert; and then you have lawyers on Mr. Landis' side and lawyers on USADA's side.
If at any time you have a hard time understanding any of us, just let us know, and -- and whoever is asking the question will take their time and go back over it.
A. Okay.

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Q. Are you ready to begin?
A. Yes, I am ready to begin.
Q. Okay. I'm going to ask you some questions about IRMS analysis to detect the use of testosterone.
And could you briefly give the Panel your experience with IRMS in that area?
A. Yes. I'm Wilhelm Schänzer. I'm head of the Cologne Laboratory since 1995, and I am working in this seat of anti-doping science since 1989.
My experience in isotope ratio mass spectrometry measurement of steroids started in 1997, so about ten years ago, when we obtained the first machine, and used this technique over ten years. And in the last, I think, three years, we analyzed about 1,500 urine samples from controls, doping control samples, by isotope ratio mass spectrometry.
In general, these samples were follow-up studies, which were applied when T/E ratio was greater than 4 or when other suspicious parameters in the steroid profile occurred.
Based on this, samples in the last

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two or three years that involved 50 to 60 samples, which we reported positive for -- or by the isotope ratio mass spectrometry, adverse analytical findings for testosterone or the kind of other prohormones which influenced the data values of the normal steroids.
The technique is very, very well developed and highly reliable and, at this state of art, a very well-accepted technique from my point of view.
Q. And were any of those 50 or 60 positive results subsequently overturned by a hearing panel?
A. In this laboratory, two or three years, we had no hearing panel because our results were --
THE REPORTER: I can't hear.
A. -- accepted by the athletes and the federations and especially in those cases where we applied the techniques of other laboratories which have not (inaudible) isotope measurement --
THE REPORTER: I can't hear.
A. We also have no problems that this regards had to go to any kind of further

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investigations at the court. So no problem in all cases.
Q. Thank you, Dr. Schänzer.
And for the benefit of the court reporter, who we have taking this down, if you could just speak a little more slowly --
A. Yes.
Q. -- that would be easier on her.
A. Okay. No problem for me.
Q. Are you looking for an answer?
THE REPORTER: The last answer, I missed some of what he said, because I was saying "I didn't hear him." He said "in his laboratory two or three years, I've been..." And I didn't hear.
A. Are you waiting for an answer?
Q. No, no. The court reporter is saying she didn't get down your last answer, so let's -- let me ask you again.
A. Okay.
Q. And you can give her an answer slightly more slowly.
A. I think that's correct.
Q. The question that I'd asked was, of the 50 or 60 samples that you've reported

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positive using IRMS in the last three years, have any of those been overturned in any court or arbitration proceeding?
A. As far as I know, there was no further going over to the court. In those cases, where we applied the techniques for other laboratories who were mainly involved in the case, I have no exact data. And in all the cases I get no feedback from them -- from them that there had been any problems with the data and the results, so that was analytical findings.
Q. And would it be typical that if there was a case where there was a challenge to your IRMS results that you would be called in and advised and asked to defend it?
A. In general, this would be the case.
Q. Okay. Have you reviewed the documentation packages prepared by the Paris laboratory?
A. Yes, I have looked over the files and the data and, from my opinion, the isotope ratio mass spectrometry technique from the Paris laboratory was well applied. The technique is presented in excellent, excellent field. I know

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the laboratory since several years. And the data I have seen is, from my expertise, excellent, and it clearly shows an adverse analytical finding for the misuse of testosterone or kind of other prohormones of testosterone.
THE REPORTER: Or kind of what?
DR. BOTRÉ: Prohormones.
MR. BRUNET: Dr. Botré, what was that word?
DR. BOTRÉ: Prohormones.
MR. BRUNET: Prohormones.
THE WITNESS: Prohormones.
MR. YOUNG: Prohormones. Did I get that right?
DR. BOTRÉ: Yeah.
Q. Have you looked at the controls that were run in connection with the athlete's --
A. Yes.
Q. -- Stage 17 sample, and are you satisfied with those controls?
A. Yes. I've seen the controls, and I am satisfied with all the data. I have seen the peak forms, the peak shapes, and also the internal reference compound, and I think all of

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this data gives me a clear indication that the technique, the instrument, runs in good, excellent condition, very well performance of the instrument, and the data are clearly presented.
Q. In the interest of time, and because we've already heard from other witnesses on this, I'm not going to take you through all of the different controls. But I will ask you to look at one of the questions that Mr. Landis' lawyer keeps raising, and that has to do with the internal standard.
And if you'd take a look at the documentation package, I think they're Exhibits 24 and 25; it's Pages 185 and 351 of the documentation packages.
A. Yes, I have --
Q. Give everybody just a second to find it.
When you've found it, let us know, and then I will ask you a question.
MR. BRUNET: Can you give us those page numbers again, please?
A. One moment -- one moment, please.
Q. 185 and 351.

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A. I have already the data file, and I have -- okay.
Q. So let's look at Page 185 first, and there are -- the testimony yesterday from the witnesses from the Paris lab was that they used the internal standard --
A. Yes.
Q. -- which is 5-alpha androstanediol?
A. No, androstenol. It's an androstenol; it's not a diol.
Q. I'm sorry, the androstenol -- as a measure of retention time --
A. Yes.
Q. -- and they don't pay attention to the quantification.
A. Yes, that's correct.
Q. But in your view, if you did pay attention to the quantification on Page 185, would the differences in the values reported there trouble you?
A. I have looked to the data of the blanks and suspicious samples, and I've came to a calculation that the standard variation of .65 per mil, from which is, from our point of view, very well acceptable. We have similar variation

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in this internal reference component in our laboratory. This variation is a little bit bigger than the other steroids because this is always eluted very early in the chromatogram and normally also more influenced by the biological background.
So this is our experience over the last years that this is more -- a little bit more variation, but the variation in this sample is, from our point of view, very well acceptable, so in our laboratory we obtain similar variations.
Q. And would that apply to the B sample as well?
A. The B sample as well, how I calculated a standard deviation of the sample for the return of .59 per mil. So this is also a very well acceptable value, would show that the instrument is running under perfect conditions and the data providing are highly reliable.
Q. What metabolites does the Cologne laboratory look for today in analyzing samples using IRMS?
A. Actually, we are using on a routine

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basis the main metabolites from testosterone which is androsterone and etiocholanolone, and we use as endogenous reference steroids, 11 hydroxy androsterone or pregnanediol --
THE REPORTER: Excuse me?
A. This is --
Q. Let's stop, because the reporter needs the scientific terms again.
A. We use androsterone and etiocholanolone.
Q. Etiocholanolone?
A. Etiocholanolone, as analytes, and as reference steroids --
THE REPORTER: Excuse me?
Q. And as an exogenous reference compound?
A. And it shows the normal values in the body, pregnanediol and 11 hydroxy androsterone.
Q. Okay.
A. We use this as a definitive conclusion that the sample is positive, higher than difference -- it's the difference between androsterone and etiocholanolone is higher than 3 per mil.

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We additionally analyze the suspicious sample, 5-alpha diol, and testosterone itself, and 5-beta diol to provide additional information.
Q. If you could take a look at Page 352 of Exhibit 25, please.
A. 352? One moment. This is 352, which --
Q. It's of the B documentation package.
A. It's the B documentation package, correct. This picture presented the values of the -- of the sample analyte with the differences calculated, and this gives results which the laboratory reported results higher than 3 per mil, so the androsterone, 11-keto, from our opinion, is the difference here in this case is 3 per mil and 5-alpha diol minus 5-beta diol. From their conclusion, they consider an uncertainty of .8 per mil. They conclude that the 5-alpha diol difference to the 5-beta diol exogenous reference compound is 6.39 per mil, is clear evidence for an adverse analytical finding.
Q. And my question to you is, if you were to have analyzed these samples and obtained

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this data, would you have called the sample positive?
A. Actually, we use the differences between androsterone and pregnanediol, and also for etiocholanolone for reporting an adverse analytical finding and, in this case, I would have the sample reported positive for the difference between androsterone and pregnanediol higher than 3 per mil.
Q. And of that higher than 3 per mil, would you then add on top of that any uncertainty figure?
A. This uncertainty the laboratory in Paris' used is in our reference population and in our criteria included in the 3 per mil difference.
So our 3 per mil criteria was clearly established by a reference group of 50 to 60 persons with calculating upper -- upper end limits, and this value included all the particular variance, the analytical variance, the method variation, and isotope variation for the uncertainty, which is similar, in general, to the -- to the measurement alone to the other labs. But this is included in the 3 per mil

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criteria.
So, in any case, if we have a difference higher than 3 per mil, the sample will be declared positive as it was in this analytical finding.
Q. Let me direct your attention to Exhibit 33.
A. One moment please. 33. I have -- this is the textbook study?
Q. Yes, it is.
A. In my -- in my document, it's 34.
Q. I'm sorry.
A. I have 34 and 34 A.
Q. All right. I'm sorry. I'm going to ask you about 34.
A. Yes. In my file, it is 34.
MR. CAMPBELL: Richard, it's 34 in ours as well.
Q. Okay. I'm sorry, sir. It's 34 and 34 A.
Has the data in this document been presented in any public forum?
A. This data is -- reports, yes, from the WADA project -- and the data has been presented the beginning of this year in March,

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beginning of March, to the International Cologne Workshop of Doping Analysis. So this data has been presented to all the scientists internationally, and the data have been supplied for publication in the proceedings, and they are well accepted.
Q. And has the data been accepted for publication?
A. The data has been accepted, and publication is in progress.
MR. CAMPBELL: Mr. Young, I've got a question.
When I denied their motion, I denied their motion on the basis of some documents regarding three ions. I don't know if they're confused, and I don't want this -- to be any confusion on this issue.
Is this the study that we've been talking about, the Cologne study, and are -- do you want to renew your objection to this study? That's -- that's my question.
MR. WEISS: Correct. We would argue that this study has not been peer reviewed and is incomplete.
MR. CAMPBELL: Okay.

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Q. And Dr. Schänzer, is the data from this study --
A. Yes.
Q. -- that has been accepted for publication, is that incomplete?
A. Incomplete? No. For this -- this data, at this test is, the first part of the WADA-supported project which includes all the GC/MS measurements of all of this data, of this study, and it also includes this data of 1,000 with clearly analyzing all the isotope values during the application for this data within this study which will be published soon.
MR. CAMPBELL: Dr. Schänzer, has this been peer reviewed?
A. The data is -- that this data has been accepted by the reviewers, but I -- I'm not sure at the moment what is the status, if this is already going through our review processes, but, in general, this data has been accepted.
Q. And was this data reviewed in the course of the Cologne workshop by the scientists who were there? Was there any comment as to problems with this data?
A. No. It was very, very, very -- the

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stu- -- the study was very interesting, and it was also very well accepted during the discussion. It shows, from our point of view, that --

MR. YOUNG: One second. We have the -- we have one of the Panel who wants to say something.

MR. CAMPBELL: Yeah. I just want to converse with the Panel before we go further.

(Panel conferring.)

MR. CAMPBELL: Dr. Schänzer, I think we need some clarification on one of your answers.

THE WITNESS: Yes.

MR. CAMPBELL: Do you know whether this document has been peer reviewed?

THE WITNESS: What question again? I didn't understand the question.

MR. CAMPBELL: Has this document been peer reviewed?

A. The document is in a position that it has been accepted at the moment, so this proceedings, yes, and it is now in the hands of two independent reviewers. And I have not the status, actually, what is the final -- final

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outcome. So there may be some slight modification from the reviewers, but this, I don't have that actually in my mind. But the start of this at the presentation was accepted, but the final status actually is not published.

MR. MC LAREN: We recognize it's not published. Mr. Young, can you help us? Is it peer reviewed in the sense that you -- you and the Panel would understand it, or is it not?

MR. YOUNG: And Dr. Schänzer, let me state the facts, as I understand them, and then would you please -- I don't want to tell the Panel anything wrong. So, if I do --

A. Yes.

Q. -- I'll give you a chance to set the record straight.

A. Yes, correct.

Q. To the extent that it is presented in front of a bunch of scientists --

A. Yes.

Q. -- who've an opportunity to comment on it?

A. Yes.

Q. -- that's -- that is --

MR. SUH: I object. Because I don't

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think you should be able to cross him through this.

MR. YOUNG: No -- I'm not getting answers -- Mr. McLaren asked me a question.

MR. MC LAREN: He's not crossing. He's trying to summarize whether it's peer reviewed and then have Dr. Schänzer confirm or not.

Q. (By Mr. Young) And then Dr. Schänzer, what I've done, I think they asked me the question, not you, and -- but all I'd ask you to do is, if I get it wrong, I want to make sure that the Panel gets it right, so --

A. Correct.

Q. -- so if I say something wrong, please, correct me.

MR. YOUNG: So where I was -- Mr. McLaren, in answering your question was -- it's presented in front of a group of eminent scientists in the field --

THE WITNESS: Yes.

MR. YOUNG: -- and they have an opportunity to criticize it or comment on it at that time.

THE WITNESS: That's correct.

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MR. YOUNG: Wait until I'm done, Dr. Schänzer, and then you can -- then you can correct anything that you -- that you think is wrong.

So that is a type of peer review.

THE WITNESS: That's correct.

MR. YOUNG: Then, before the document is accepted for publication --

THE WITNESS: Yes.

MR. YOUNG: -- that is another level of review.

THE WITNESS: That's correct.

MR. YOUNG: And then there is a final level of review that occurs before the document is actually published. And that is what Dr. Schänzer is saying is in process now, and he doesn't know whether they're done with that or not.

Is that fair enough, Dr. Schänzer?

THE WITNESS: Yeah, that's the start of it. The final acceptance is still pending. But the first -- the first acceptance is the acceptance during the presentation at the workshop where no objections to the data were presented by all the qualified scientists.

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MR. CAMPBELL: Mr. Suh, do you have a comment?
MR. SUH: Just that there is a difference between presenting a paper to a symposium panel and actually having it peer reviewed. Our understanding is peer review is peer review, and that hasn't been done yet. But beyond that, we submit to the Panel.
MR. YOUNG: And again -- and this is not for you, Dr. Schänzer, this is discussion between the lawyers to the Panel.
Members of the Panel, there are different levels of reliability of scientific evidence, and it would be hard to believe that one could only rely on peer-reviewed scientific evidence if the evidence is otherwise reliable, just like we rely on opinion testimony by experts, which is based on their research or their experience or whatever. I understand there may be circumstances where you'd only want to rely on peer review, because you have no other way of evaluating reliability. But I would be surprised if that were the case on every scientific document.
MR. MC LAREN: Just give us a

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moment.
THE WITNESS: That's correct.
MR. YOUNG: So -- so at the moment, Dr. Schänzer, since you can't watch what's going on, the Panel are all talking to each other, and we will hear back from them shortly, so just, please, be patient and hang on the line.
THE WITNESS: Yes.
MR. MC LAREN: The ruling is that we're going to treat this as being sufficiently complete to allow it. We recognize that the final review process of publication is still in progress, but given that it was reviewed at the workshop and subsequently reviewed for publication, we're going to treat that as sufficient in this case.
So go ahead with your examination.
MR. YOUNG: Thank you.
Q. (By Mr. Young) Dr. Schänzer, in your paper, what does it tell us about the relationships between the 5-alpha and the 5-beta diol in terms of what happens when you use testosterone gel?
A. From the data, we observe that the 5-alpha --

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MR. MC LAREN: Dr. Schänzer, could I just stop you for a moment? It's Richard McLaren. I'm one of the arbitrators. Mr. Young and Mr. Suh, we were just passed a note from our Panel expert that he was the chair of these meetings.
Do either of you have any comment on that before we continue here?
You're shaking your head, Mr. Young.
I can't see Mr. Suh.
MR. YOUNG: No. I have -- I have no comment and no problem.
MR. SUH: No, no problem. Thank you.
MC LAREN: Okay. I'm sorry. Go ahead.
You better repeat your question.
DR. BOTRÉ: I didn't want to hide this. Sorry.
Q. (By Mr. Young) So go ahead, Dr. Schänzer.
A. Yes. The data show that the 5-alpha androstane diol compared to the 5-beta diol is much more influenced. It's more, we say, depleted, of the testosterone, the application,

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as the 5-beta diol and this made the antidote, as it is applied where the cream is being on the skin, yes? And in the skin, normally, this cell is reported to be a high 5 alpha reductase activities. So this is the -- N 5, which converted the testosterone mainly to the 5-alpha isomers.
So this can be one explanation that the 5-alpha androstenediol seems to be the best parameter, and it's the most of the best steroids, which is mostly influenced in the isotope values, because the testosterone has a dif- -- clear different isotope value than the other steroids normally produced in the body.
Q. Could -- could you look at figure 20 --
A. Yes.
Q. -- of your study, please? It's on Page 15 of the study.
A. Yes, Figure 20 on Page 15.
This figure?
Q. Is it what I've put up as Figure 20.
A. Yes.
Q. Can you see that?
A. Yes. Figure -- Figure 20 gives two

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charts. The other one is the difference of testosterone to our internal standards, and the other sample from the other figure is a difference of 5-alpha androstenediol to the exogenous reference compound.

MR. YOUNG: And James, I'd like 20 and 21 up at the same time, if you can do that.

A. This -- can you repeat your question? Yes. Because 20 and 21 are the bars corrected of the sample at the same time. So this means the delta in column 1, in Figure 20 and 21, are the data corresponding at the same time and so the other chart have bars too.

Q. (By Mr. Young) And so am I reading that correctly that, after the administration of testosterone gel --

A. Yes.

Q. -- the 5-alpha was affected twice as much as the 5-beta?

A. In this case, it was much more inference than the 5-beta; that's correct.

Q. And then, was that also true after the athlete had taken time off from application of testosterone gel, and then it started again?

A. Yes, that's correct. So this means

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that it's -- the response is seeded already for one-week application of Testogel given --

THE REPORTER: I didn't hear.

A. -- and in Columns 5 and 6, it was stopped Testogel application and then in Column 7 and 8, it was a time and a test application was continued. And then, now, also at this time, the data -- the isotope value had clearly changed higher than 3 per mil. Not much under the first peak, but this is one.

MR. BRUNET: Dr. Schänzer, this is Patrice Brunet. I'm the chair of the Panel.

THE WITNESS: Yes.

MR. BRUNET: If you could speak, maybe, at a one-inch distance or, rather, a three-centimeter distance, on the telephone --

THE WITNESS: Okay.

MR. BRUNET: -- because we're getting a -- it's -- sometimes it's difficult to hear you.

THE WITNESS: Okay.

MR. BRUNET: And just make sure that you speak slowly, especially when you get into the terminology.

THE WITNESS: Yes.

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MR. BRUNET: Thank you.

THE WITNESS: Okay. Is this better now?

MR. BRUNET: Did you want to repeat it?

THE WITNESS: Okay. Should I repeat?

MR. BRUNET: Yes, if you can repeat your answer that would be appreciated by the court reporter.

Q. (By Mr. Young) Do you remember my question? My question was -- well, let me take you through -- the green bars at the beginning of these charts represent what?

A. The green bars represent the time when no Testogel was applied. The rest of the samples taken during the time period when the Testogel was applied.

In this case, the study was that they started without Testogel at the beginning. Then we take one -- the person gets one week Testogel, and then one week without Testogel, the next week with Testogel, and then it was stopped. So this means -- the red bar indicates the changes on the isotope values during the

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Testogel application.

MR. BRUNET: Dr. Schänzer, this is Patrice Brunet again. Just, in language, I just want to clarify that when you say Testogel, you mean it's the testosterone gel?

A. Yes.

MR. BRUNET: All right. Thank you.

A. That's an abbreviation which we use, testosterone gel, we will say -- we always use the term Testogel.

MR. CAMPBELL: Mr. Young, at some point, I'm going to want to ask him a question about this, but I don't want to interrupt your testimony or your question.

Q. I'm going to ask him one more question, and then you can ask him questions about that. That would probably make sense.

My -- my final question to you, Dr. Schänzer, would be, looking at the IRMS data in the this case, do you have any doubt at all that this was an athlete that was administering exogenous testosterone or its precursors?

A. I think that the data clearly shows, or gives evidence, that testosterone, or a precursor of testosterone, was used; and the

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data is high in agreement with the kind of test application or the kind of very low application of testosterone.

MR. YOUNG: I have no further questions of this witness.

Mr. Campbell, would you like to ask him questions about Figures 20 and 21 now?

MR. CAMPBELL: Yes. Unless, Mr. Suh, you would rather start your cross first.

MR. SUH: No, Mr. Campbell. We'd like to hear your questions.

MR. CAMPBELL: Okay.

MR. YOUNG: And then, Dr. Schänzer, the first person who's going to ask you questions, and then they can introduce themselves, is a member of the Panel, Mr. Christopher Campbell, and then when we switch over to Mr. Landis' lawyer, Mr. Suh, he'll be introduced separately. Okay.

EXAMINATION

BY MR. CAMPBELL:

Q. Dr. Schänzer--

A. Yes.

Q. -- during this period that you

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performed this study --

A. Yes.

Q. -- did you also monitor the endogenous production of the individual steroids --

A. Yes.

Q. -- steroids to see if there was any suppression?

A. Yes.

Q. And what did you find?

A. In general, the epitestosterone was suppressed. The 5-alpha steroids was mainly increased and also the testosterone compared to normal -- normal values. So, in general, if you use the ratios of testosterone to epitestosterone, if you use the ratio of the 5-alpha diol to the epitestosterone, this ratio shows, during this study, a clear technical change in their ratio.

MR. CAMPBELL: And -- and I'm not a scientist, so I may be a little bit unclear, but I think you said the epitestosterone was suppressed. But I'm thinking more about sort of a steroid screen that you would do? Over the sort of the natural reductions of the other sort

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of steroids that an individual had.

A. Yeah. We saw -- on this studies, we had an 18-person test which was doing this, and only in half of the persons of the test took an application, the T/E ratio was higher, was increased higher than -- than 4. And in some individuals, an increase of the test -- of the epitestosterone was not higher than four, and this is still a problem for doping control.

MR. CAMPBELL: Yeah. And I'm not talking about the T/E ratio. I'm talking about the suppression of the natural endogenous steroids that you -- that we all produce normally.

A. Yes.

MR. CAMPBELL: And perhaps, I just don't know what I'm asking, but --

A. Okay.

MR. CAMPBELL: But I see Dr. Bowers smiling over there. Could you help me out, Dr. Bowers?

DR. BOWERS: You're asking about steroid profile.

MR. CAMPBELL: I'm asking about the steroid profile.

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A. Yes, that's -- that's correct.

Q. And were there -- did you notice suppression in the steroid profile? Is that the right way to ask it, Dr. Bowers?

MR. BOWERS: Yes.

MR. CAMPBELL: Yes.

Q. Do you understand, Dr. Schänzer?

A. Your question was whether we obtained changes in the steroid profile?

Q. Yes.

A. And I have to say yes, and -- well, actually, in this case, we also obtained changes in the steroid profile, which could be seen in the testosterone concentration in the ratio from testosterone to epitestosterone and also from some other parameters.

MR. CAMPBELL: Thank you.

MR. BRUNET: Thank you.

Mr. Suh?

Thank you, Dr. Schänzer. We will now have Mr. Suh ask you some questions on cross-examination.

MR. SUH: Thank you. Actually, Mr. Jacobs will begin.

MR. BRUNET: I'm sorry. That would

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be Mr. Jacobs then.
MR. SUH: Thank you.
MR. BRUNET: Dr. Schänzer, I know that you've been on stand by for quite a while to testify. Would you rather take a 15-minute recess at this point in time?
A. Do you need the interruption?
MR. BRUNET: No, we don't need an interruption. At this point I'm asking if you would rather have an interruption at this point because you've been on standby for quite a while.
A. I take a glass of water now.
MR. BRUNET: And we'll continue then.
A. Yes.

EXAMINATION
BY MR. JACOBS:
Q. Dr. Schänzer, this is Howard Jacobs. Can you hear me?
A. Yes, I can hear you.
Q. I want to ask you some other questions from the study that we were talking about.

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If you can look at Exhibit 34 on Page 14 at Figure 18. Page 14.
A. Figure 18.
Q. Figure 18, yes.
This is a chart showing values received for one of the volunteers, and again, the green bars are when there's no testosterone gel administration, correct?
A. In this case, yes.
Q. And the red bars show the values when testosterone gel is applied, correct?
A. Yes, that is correct.
Q. The first chart on Figure 18 is T/E ratio, and there's a blue dotted line that goes --
A. Yes.
Q. -- across?
A. Yes.
Q. What is the value at that blue dotted line?
A. The value is the T/E ratio.
Q. I know. But we can't read the value that is corresponding to the dotted line. Can you tell us what that is?
A. We are talking to the next one, yes?

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Q. I'm looking at Figure 18 of your study on Page 14.
A. Oh. One moment. I got 18. Then I'm on the wrong side. Okay.
You are looking to the left side of the box, yes?
Q. I'm looking at Figure 18 at the graph for T/E ratio.
A. Okay. That is the ratio, and the graph shows, if you see the dotted line, yes? The dotted line, this means that the -- the T/E ratio of 5 -- of 4, I think. So, the interruption is, I think 5, 10, 15, 20, 25, on this way.
Q. Okay. So the dotted line is a T/E ratio of 5 --
A. Or 4.
Q. -- to 1.
A. 4 to 1.
Q. 4 to 1?
A. It's an interrupted line, yes.
Q. So what this shows for this volunteer, if I understand it correctly, is, every time this volunteer was administered testosterone gel, his T/E ratio went above 4,

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correct?
A. This is what, T/E epi -- yes. You see, in this -- during this state of application, the T/E values are increased, higher than 4, correct.
Q. Let's take a look at Figure 19 on the same page.
A. Yes.
Q. And the top graph for T/E ratio, and I want to make sure I understand this is a volunteer who was intermittently given testosterone gel, so he would go some period of time without testosterone gel, and then some period of time with, and then some period of time without. Correct?
A. That's correct.
Q. And again, the green bars represent instances where the testosterone gel was not applied, and the red bars correspond with the times that testosterone gel was applied, correct?
A. That's correct, yes.
Q. And what this shows for this individual is that every time the testosterone gel was applied, the T/E ratio was at or above

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4-to-1, correct?
A. Yes, in this case, for this sample, the T/E ratio is higher than 4.
Q. Now, let's turn to Exhibit 34 A.
A. 34 A, yes.
Q. This is a continuation of the same study; did I understand that correctly?
A. Yes, with another -- with another person.
Q. Okay. And again, we have on the T/E, the red bars represent when testosterone gel is applied, and the green bars represent when testosterone gel is not applied, correct?
A. That is correct, yes.
Q. And what this shows for this individual is that every time testosterone gel was applied, the T/E ratio was well in excess of 10-to-1, correct?
A. That is correct, yes.
MR. JACOBS: I'm going to pass to Mr. Suh for the remaining questions.
A. What did you want?
MR. BRUNET: The other counsel for Mr. Landis will be continuing the cross-examination.

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A. Aha, yes, okay.

EXAMINATION

BY MR. SUH:
Q. Good morning, Dr. Schänzer.
A. Yes.
Q. Yes. Just to -- before we leave the subject of your study -- when you looked through the documents for Mr. Landis' test results, did you see that, in the retesting analysis -- excuse me -- the testing of the other stages -- other stages from the Tour, that the IRMS values and adverse analytical findings were allegedly positive, but that the T/E results --
A. Yes.
Q. -- were negative?
A. Yes. One moment. I would like to look for this table, yes? So, one moment.
MR. SUH: Does Dr. Schänzer have access to a fax machine right now?
MR. BRUNET: Dr. Schänzer --
A. I have access to a fax machine, yes.
MR. BRUNET: He heard you.
MR. SUH: Well, of course. I think it might be helpful if we sent to him this

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particular exhibit by fax. It's --
MR. YOUNG: He actually has this exhibit.
MR. SUH: It is --
MR. BRUNET: Is this a new exhibit?
MR. YOUNG: The old exhibit's 107.
MR. SUH: It's not this exhibit.
MR. BRUNET: Just one moment, Dr. Schänzer.
MR. SUH: Mr. Chair, there is a table that looks like this. Let me put it up just so that the Panel can see it.
What it is, is a summary of the results of the adverse analytical findings from the other stages, the alleged adverse, and then there are the -- let's see, the T/E. There it is -- right there on the third column right there, the T/E results.
Now, in their -- in USADA's brief, there is a version of this table, but it does not have the T/E results in the table.
MR. BRUNET: Okay.
MR. SUH: So I think it would be worthwhile to just take a moment and fax this.
MR. BRUNET: So that's a document

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that you've -- you have produced yourself?
MR. SUH: Yes.
MR. BRUNET: And that can be arranged to fax it to Dr. Schänzer immediately.
MR. SUH: Yes. We didn't think we'd need it for Dr. Schänzer so ...
MR. CAMPBELL: Do you have a fax machine, or should we get Bryan to --
MR. SUH: Maybe we could have your assistant fax it.
Dr. Schänzer, if you could hold on one second.
MR. CAMPBELL: He needs the number, right?
MR. SUH: Dr. Schänzer, could you tell us what your fax number is, please?
THE WITNESS: One moment, please.
MR. BRUNET: Dr. Schänzer, this will take a few minutes, so we'll call a recess for 15 minutes. We'll reconvene at exactly 11:45.
Dr. Schänzer, don't hang up the call, please.
THE WITNESS: I didn't understand what you said.
MR. BRUNET: Okay. We are taking a

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15-minute break.
THE WITNESS: Can I give you my fax number now?
MR. BRUNET: Yes, you can give the fax number now.
MR. YOUNG: Not on an open line.
THE WITNESS: This is Germany.
MR. YOUNG: Whoa, whoa, whoa.
MR. BRUNET: Dr. Schänzer. Dr. Schänzer. Just a minute. You should not put that fax number over the air. We'll contact you with the fax number.
(Recessed from 11:26 - 11:50 am.)
MR. BRUNET: Dr. Schänzer, this is Patrice Brunet with -- the Panel chairman. Can you hear me?
THE WITNESS: Yes. I can hear you.
MR. BRUNET: Welcome back.
I understand you were faxed a document moments ago?
THE WITNESS: Yes.
MR. BRUNET: And that document bears the notation GDC 01363, does it not?
THE WITNESS: That is correct.
MR. BRUNET: Thank you. I'll turn

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this over to Mr. Suh.

EXAMINATION (cont'd.)
BY MR. SUH:
Q. Dr. Schänzer?
A. Yes.
Q. Perhaps we could go back to the same bar graphs that we were looking at before.
A. Yes.
Q. And in essence what your study shows that with the administration of testosterone gel, that the T/E test -- that the T/E test registers a value of over 4.1; is that right? In other words, the administration --
A. The data you have seen in this delta, the T/E ratio increased -- was increased higher than 4, that's correct. This was the data you have seen in this figures for this person's P3, and I think it was P9 or 10, for this two persons. It was higher than 4, that's correct.
Q. Yesterday we had a former bike racer, named Joe Papp, who USADA called as their witness to testify that he had taken testosterone gel, and that when he had taken

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testosterone gel, he had routinely not been detected by the T/E test. That is disproved by the result of your study; isn't that right?
A. This is not a dispute. If you look to the Annex 1 in this WADA report, you will find all T/E changes for the 8 persons -- 18 persons we have investigated, and you will see, in certain persons, they will not exceed the T/E ratio, higher than 4. For example, if you look in the annex to the different persons, so following Page 18 of the report, Annex 1, for example, you see directly this is a person where the T/E ratio exceeds a maximum value of 3, not more.
So this means you have individual persons who will not exceed it, and also depending on the application, how -- what's the amount, how much of the gel really was -- if he takes the gel -- was absorbed by the skin. You will see also differences and sometimes, and also they will come back, which is not exceeding the ratio of 4. So this is not a correct conclusion to say that after testosterone gel application the T/E ratio has to -- will increase and be higher than 4.

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MR. BRUNET: Dr. Schänzer, this is Patrice Brunet again. Just for reference, for confirmation, that you were referring to Exhibit 34, which is the project report --
THE WITNESS: Yes.
MR. BRUNET: -- and you were looking at Page 18, and the following page is Annex 1, which is not -- there's no number on the page, is that --
THE WITNESS: That's correct.
MR. BRUNET: -- is that what you are referring to?
THE WITNESS: It's Annex 1, but the pages are numbered with the persons: person 1, person 2, person 3, person 4, and so on.
MR. BRUNET: Thank you.
Q. Wouldn't you agree with me, Dr. Schänzer, that -- however, that in Annex 1, all of those subjects had their T/E values rise above the acceptable reference range shown within their longitudinal study?
A. Not all. I think there were -- I think, two persons were -- even their normal values were not altered significantly, if I remember from this data.

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Q. Could you point us to the specific subjects?
A. Yes. If you go to Subject 18 on that last page, and Subject 16, these two subjects were no clear changes in the T/E ratio could be significantly followed.
Q. Dr. Schänzer, give us one moment while we look at that particular person that you pointed our attention to.
A. Yes.
Q. And who is the other person? You said there were two.
A. It is Person 16, and the other person was Person 18.
Q. Have you looked at the longitudinal data for -- longitudinal T/E data for Mr. Landis --
A. This is the table --
Q. -- apart -- I'm sorry -- apart from the table?
A. Yes, I have also seen -- seen this data, I have.
Q. And have you been able to have the opportunity to calculate that the mean, standard deviation and coefficient of variation of the

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longitudinal data for Mr. Landis are 1.5, 0.46, and 30.76 percent, respectively?
And for the benefit of the Panel, I'll put this up on the overhead.
It's actually taken from -- this is actually taken from USADA's brief, Page 70.
A. One moment.
Q. Okay.
A. I am not at the exact table at the moment. What is it? What page is it?
MR. BRUNET: It's Page 70 in the brief, the USADA brief.
MR. MC LAREN: Mr. Young, was he supplied with the briefs?
MR. YOUNG: Yes, in a lot of boxes.
THE WITNESS: What is the box -- what is the document name exactly? It's not within the A and B sample report.
MR. SUH: It's the USADA brief Page -- Page 70 and 71.
THE WITNESS: And what is the document?
MR. SUH: It's USADA's prehearing brief. I think the first one is prehearing, and the second one is pretrial. So it's --

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MR. MC LAREN: I'm looking at it. Prehearing brief of the United States Anti-Doping Agency is the name.
THE WITNESS: One moment.
Yes, the hearing brief of the United States Anti-Doping Agency, Page 70. So this is a picture -- yes, I have it now.
Okay.
Q. (By Mr. Suh) Okay. Now, turning back to the chart that we had just faxed you --
A. Yes.
Q. -- I would like to highlight the alleged adverse analytical findings on -- they're on line 3, line 5, line 6 is the one which is Stage 17, line 7 and line 8.
Do you see that?
A. Yes.
Q. Do you see that the T/E value for -- what I will circle here. And I will simply tell you, because you can't see this overhead, of line 1, 2, 3, 4, 5, although it reports an adverse analytical finding from IRMS, that it is below the reference range in the longitudinal study, the 1.8 T/E.
A. Yes. What is your question?

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Q. Do you see that that's below -- would you agree that that's below the applicable reference range?
A. What is -- what is your question?
Q. Would you agree that it is below Mr. Landis' applicable reference range?
MR. YOUNG: Could we have a clarification of what "it" is?
A. Of this? This calculation, yes --
Q. Yes.
A. -- is based on screening data, and I think within this is one confirmation data. And I think if I'm to view -- review this thing, I think it would be -- you have to be very careful to calculate here this thing, but I look to the T/E ratios, which are presented here.
Q. Let me -- let me ask the question again --
A. Yes.
Q. -- just so it's clear.
A. I need -- I need a clear question.
Q. Would you agree that this T/E ratio, on line 1, 2, 3, 4, 5, for July 18th, is within the reference range as shown in the longitudinal study?

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A. Yes, not a problem. Normally, you can make the specific calculation; you can say these are within these calculation ranges. That is, I would also agree by this calculation.
Q. Yes. And then going down 1, 2, 3, 4, 5, 6, 7, 8 --
A. Yes.
Q. -- on July 23 --
A. Yes.
Q. -- that value of 1 T/E ratio is within the applicable reference range as shown in the longitudinal study?
A. Yes. I think from this calculation, it is within the range.
Q. Earlier you were talking about the fact that no one has -- and correct me if I am wrong about this -- but no one has overturned any of the positive IRMS results done by your lab, correct?
A. Once again, can you repeat your question?
Q. Yes. When you were testifying earlier --
A. Yes.
Q. -- I believe you said that no one

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had -- that at no time had your -- an adverse analytical finding, as shown by your IRMS method been overturned?
A. In the last -- in the last two or three years.
Q. And -- during the last two or three years?
A. Yes.
Q. And were any overturned prior to the last two or three years?
A. Was over?
Q. Overturned.
A. What does it mean, overturned?
Q. Found to have been invalid during the course of some arbitration or court proceeding.
A. No, that -- no objection.
Q. How many times have your IRMS results been challenged?
A. How many times? The last two or three years, we have no -- no challenge in this cases.
Q. Do you know any personnel associated with the LNDD laboratory?
A. Personally?

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Q. Yes, personally.
A. I had, two years ago, sometimes connection during workshops and some other scientific meetings.
Q. And with which person?
A. I directly had no contact with -- or maybe with the lab director, the lab director from the Paris laboratory I have contact personally. I have contact with some scientists from the lab -- but I directly have no contact to the technicians of the laboratory.
Q. And you had direct contact with, it would be Dr. de Ceaurriz at LNDD, correct?
A. Sometimes during the workshop, we had contact, and we discussed some things; that's correct.
Q. And what kinds of things did you discuss with Dr. de Ceaurriz?
A. During the workshop, I think, two -- one or two years ago, I discussed some scientific facts with him.
Q. And what was the subject of that workshop?
A. There was so many subjects. In general, I tried to discuss about the EPO and

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the hematocrit things. I've never discussed in, I think, concerning isotope measurements.
Q. Your testimony is that you have reviewed all of the -- the document package and all of the related documents in this case, correct?
A. I hope -- I hope that I've reviewed all of them. I cannot guarantee that I have done it 100 percent.
Q. You testified that all of the peak shapes and forms were all good.
A. From my experience, from my point of view, I find the -- them acceptable.
Q. Do you, in your mind, see a difference between "acceptable" and "good," or are they both the same?
A. "Acceptable" is "good" for me.
Q. And when we say -- when you say that the peak shapes were all good, I'm going to ask you a series of questions. And I'm going to ask you if you see these issues in the -- in the peaks.
And I'm going to refer to the peaks as a chromatogram, as the chromatogram is the -- the graphical depiction of the peaks.

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A. Yes.
Q. And I'm going to ask if you have seen any of the following issues.
A. Yes.
Q. Okay?
A. Yes.
Q. Have you seen any issue related to high or sloping baselines?
A. You must research a special chromatogram.
Q. No. I'm just asking -- because you said earlier that all of the peak shapes were good -- I'm asking if --
A. For an analyte, on the analytes, which are androsterone, etiocholanolone, 5-alpha diol, 5-beta diol, and the 11-keto, I have seen in the chromatograms were from my -- from my experience and my expertise, I would confirm them as good -- good forms.
Q. Well, I'm asking about a specific component of good.
A. Okay.
Q. And that is whether or not you see, in any of the chromatograms associated with these adverse analytical findings, a sloping

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baseline problem.
A. Sloping baseline? I have to see the chromatogram. I think sloping baseline, we have especially -- if you have clear standards, sometimes sloping baseline has to be rated, from my point of view, in direction with your lab standards --
THE REPORTER: Excuse me?
A. -- so I need to -- I can only answer the question to clear data, I have to see what the impression of this, for me to see the data, and then I can say this is, from my point of view, acceptable or not.
Q. Well, earlier you had said that all the peak shapes were good and that you had reviewed the data --
A. Yes.
Q. -- and so I'm asking you, based on the review that you have already done --
A. Yes.
Q. -- whether or not you see a sloping baseline problem. Do you see one in any of the chromatograms associated with any adverse analytic findings in this case?
A. Okay. Okay. Yes. I've not seen

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that the sloping peak makes a problem -- gives a problem.
Q. Okay. Do you see any problem in the chromatograms with co-eluting peaks, any of the chromatograms associated --
A. Yes, I have --
Q. I'm sorry. If you could let me finish my question.
A. Yes, correct.
Q. -- any of the chromatograms associated with the adverse analytic findings in this case?
A. I have also seen, for this case, the GC/MS data file from all chromatograms with clear mass spectra, and from this point of view, I saw no interferences to the signals, and this is fully acceptable.
Q. So that's for GC/MS.
Have you -- do you have the same conclusion for the IRMS?
A. Because this is done with the same column, so I see no interference which can -- which cause problems for the data.
Q. Do you see any problem in the chromatogram, in any chromatogram, associated

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with any adverse analytic finding in this case as it relates to peak separation, good peak separation?
MR. YOUNG: Now, this witness has been talking -- clarification --
THE WITNESS: Yes.
MR. YOUNG: -- and this is for the Panel -- are we talking about IRMS only, which is what this witness has talked about or has the question expanded into the T/E ratio chromatograms?
MR. SUH: I -- the question was clear. Please stop coaching the witness. The question was clear.
MR. CAMPBELL: Mr. Suh, are you referring to any --
MR. SUH: Any chromatogram.
MR. CAMPBELL: Okay.
A. So the analytes which are of interest in this case, I have looked to the peak shapes, and I would fully accept the peak shapes; and for me, from my experience -- from my expertise, I would say they are good, sufficient --
THE REPORTER: Good what?

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MR. CAMPBELL: Mr. Suh, did that answer your question?
MR. SUH: I wasn't -- the question was going just to peak shape, I was talking about peak separation. So peak separation.
A. So the analytes, I have seen in the documents are fully sufficient, that the peak shape is sufficient for this kind of analysis. So I see there are no problem with interference which also is presented by the GC/MS systems, that no co-elution is problematic.
Q. Do you -- and that's for every chromatogram associated with the adverse analytic findings in this case?
A. Yes. To go through each of the chromatograms, I hope that I have seen all the chromatograms. And I was looking to take all the chromatograms for the different sections which were connected for the isotope ratio measurements.
Q. Dr. Schänzer, in your laboratory, do you ever, when performing an IRMS analysis, overwrite and thereby delete data generated in a sequence?
A. Now, this can happen if a sequence

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is stopped by an injection, a needle broke or whatever it is, but it sometimes happens that the analyst starts a new run again and overwrites the broken -- the broken file, the file which was not completed. It can happen.
Q. And what would cause the technician to stop and overwrite the file?
A. In general, it can happen that the injection failed, yes, that the needle was broken. It can also happen that some other things failed, that the analyst started before the temperature was really at a set point and then the sequence is stopped.
It is also -- it happens often in our laboratory that a sequence is stopped based on such a, normal technical problem. And then the next start, the next sample is run. Sometimes it can happen that this broken file is overwritten, but this can happen. That can happen.
Q. Well, what about when the file is actually completed, not when there's a problem in the middle, like a technical problem, but what about when the file is completed and data is generated and saved? Would you ever delete

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that file when it's part of an analysis of a sample?
A. I -- I never -- I never make the measurements myself, and so I have to ask my scientist. Normally, it should -- it should be not overwrited -- it should -- it should not be overwritten -- that is quite, that is a thing normally which should not -- be happen, I think. But I have observed this several times that this can occur; that you have to start the sequence new, and you enter the number of the first sample; that this sample is overwritten by -- by the software automatically.
Q. Do your -- you said that in your laboratory, the 5-alpha androstenol acetate, the internal standard, which I'm going to call the 5-alpha AC, is used as part of your quality control, correct?
A. This is the androstenol. This is correct. We use it as part of the control of the etiocholanolone.
Q. And you said that, in your lab, sometimes the measurement of the 5-alpha AC falls outside of the measurement of error, correct?

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A. This -- this happens when the oxidation -- the quality of the oxidation chamber goes to the end, and then this can be offset by the internal quality substance and also by the reference, by that mix, which is routinely run.
Q. And when that happens, what is the procedure in your lab?
Let's say you were running a sequence, and you saw the 5-alpha AC out of measurement of error. What happens after that?
A. Oh, there can -- there can be different -- different behaviors.
The technician has to find out what can cause this.
What I can say is sometimes it happens that the injection -- the injection system is not working perfect, that the oxidation chamber makes problems, that the needle or the injection makes problems itself, maybe was not excellent because the sample has run dry -- there are several reasons.
The technician has to find out what is the reason for such an event.

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Q. And then when those reasons are discovered, what do you do with respect to that particular test?
A. In general, the test is on the file, yes? And the data will not be considered further for any conclusion.
Q. The data will not be considered further for any conclusion?
That's what I thought I heard you say, correct?
A. That's correct.
Q. In other words, you -- when you find your 5-alpha acetate out of your measurement of error, you try to discover the problem that led to that being out of the measurement of error, and then you don't consider that data, correct? The data that's part of that sequence. Is that right?
A. Hello?

MR. BRUNET: Dr. Schänzer, are you still there?
THE WITNESS: There was a little disturbance, yes, in the line.
MR. BRUNET: Could you repeat your

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question, Mr. Suh?
MR. SUH: Could the reporter read it back.
Yeah, could we have it read back?
(Reporter complies.)
A. In this case, I considered the sample yes -- only the sample, yes; only the sample, not the sequence.
MR. MC LAREN: Just a moment.
The court reporter has to sit down and record what you have to say.
Could you answer again, please?
A. In this case, the sample would not be considered, it is clearly outside of the -- what we would accept, and if we have clearly located the mistake, the measurement and the sequence before, they are still valid.
MR. SUH: Okay. No further questions.
MR. BRUNET: Thank you, Mr. Suh.
Dr. Schänzer, Mr. Young will ask you a few additional questions.

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EXAMINATION
BY MR. YOUNG:
Q. Dr. Schänzer, could you open up your Exhibit 24, and -- 24 to Page 351?
A. Exhibit 24. One moment, please.
MR. MC LAREN: Sorry, the page number again?
Q. Page 351, and Exhibit --
A. 24, I have no Exhibit 24.
Q. This is the documentation package. It's Page 185.
A. 185.
Q. Correct.
A. One moment.
This is A sample, yes?
Q. That's correct.
A. Yes, that's correct.
Q. And Page 351.
A. Yes, I also have Page 351. It is the B sample summary for the isotope measurement.
Q. Would -- tell me when you've got it.
A. Yes.
Q. Okay. Would any of the SI, internal standard measurements reflected on these two

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pages, be so out of the range that you would disregard them?
A. No.
Q. And would any of the internal standards measurements on these two pages cause you to disregard any of the other data on these two pages?
A. No.
Q. To clarify something that came up earlier, you were talking about the GC/MS system. Were you talking about GC/MS in the context of the GC/MS being coupled to the IRMS instrument?
A. I think that is, in general, a GC/MS system running with the same columns, the same injection columns, and the same files, and the sample is analyzed with what is parallel; analyzed, yes, to see them for each peak, which are produced in the isotope measurements with the carbon dioxide combustion chamber, to see if this peak is really testosterone, or this analyte, like 5-alpha androstenediol, and to see if the peak is clear, and if there's any interferences.
Q. And that's part of the IRMS process.

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A. This is part of the IRMS process.
Q. You were asked questions earlier about T/E ratio and diol measurements.
Is an athlete's T/E ratio -- let me take a step back.
Is it the case that sometimes an athlete's T/E ratio is raised above 4 if he uses testosterone gel, and sometimes it's not?
A. Yes, that's correct. That's the problem. In some cases, that's the application.
You never know how much of the testosterone in the gel can be absorbed. There may be some differences between persons, but also in a person how he applied this, and then you never see if the absorption is completed. And also there are persons which will not reach the T- -- which will not reach the T/E ratio higher than 4. So there's a big variation, and therefore, so our actual methods, this T/E ratio of 4-to-1 is not sufficient to detect any such kinds of manipulation.
Q. And would the effect on T/E ratio be influenced by how much of the gel a person took on a particular day?
A. Yes. It can be influenced by the

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amount you applied; it can also be influenced by the individual metabolism; and it can also be influenced at what time you take the sample after the gel was applied. So you, as we said, not a constant change to a constant T/E ratio, but there are variations. And often, in many cases, the T/E will not be obviously changed in such a way that we can see directly by our routine as screening procedures.
Q. And are the delta/delta measurements of 5-alpha pdiol also affected by individual metabolism, dose, and time measured after administration?
A. In general, all of this is influenced, all the isotope measurements, by the time the sample is collected, and there will be some variation. And I think sometimes I have the feeling that -- that when we get an athlete with a positive finding, we have the luck to -- that the collection was on the right time -- at the right day and the right time. So, in general, there's a high fluctuation between the parameters. And, in general, my opinion is that all samples should be screened by isotope measurements to have a more effective doping

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control.
Q. If an athlete were to take other prohormones of testosterone at the same time he was using a testosterone gel, would that affect the T/E ratio and the IRMS measurements?
A. It can also affect, yes. No data would show what happens if a perfect manipulation happens. In Testogel, maybe you got all testosterone and a kind of prohormone, so you can alter your mixtures and then --
THE REPORTER: I didn't get -- I'm sorry. I didn't get that.
Q. Could you back up a sentence and be a little slower for the court reporter, please.
A. Okay. Sorry.
I think that isotope values and also T/E ratio may be affected or affected by the kind of application and by the testosterone gel application, by another kind of testosterone application. There are injection preparations, but also all are testosterone applications. There are prohormones which can be used, and it can also happen that the perfect manipulation is trying to use all of these testosterones at the same time to try to circumvent the detection by

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the T/E ratio methods.
MR. YOUNG: Thank you. I have no further questions.
THE WITNESS: Okay.
MR. YOUNG: And then -- then await direction from the Panel to tell you whether you're done or not.
Thank you, sir.
MR. BRUNET: Thank you, Mr. Young.
Mr. Suh?
MR. SUH: No further questions.
MR. BRUNET: Well, thank you very much, Dr. Schänzer. We wish you a nice evening, and that will be the end of your testimony today.
THE WITNESS: Okay. Thank you.
MR. BRUNET: Thank you. You have a good night.
THE WITNESS: Bye-bye.
MR. BRUNET: And we're going to lunch.
One hour, please.
(Recess taken from 12:30 to 1:50 p.m. for the noon hour.)
MR. BRUNET: I apologize for being